WHAT IS CLAIMED IS:

1. In a method for detecting and quantifying an analyte in a solution using Surface Enhanced Raman Scattering of light using an active metal sensor placed into a sample being analyzed, the improvement comprising using the active metal sensor periodically, with a period, T_{ed}, which period is formed by modulating the electrodeposition current density in a galvanodynamic regime of the electrodeposition at the equilibrium potential of the active metal in an active metal solution.

2. The method according to claim 1 wherein the surface of the active metal sensor is illuminated with monochromatic light at frequency ν_e and the SERS spectrum obtained for the analyte is registered in a synchronous detection mode with porosity at $S<0.5\ T_{ed}$, and wherein the detection period of the analytical signal T_d is synchronized with the modulation period of the active metal electrodeposition current.

3. The method according to claim 2 wherein the amount of analyte is defined as:

$$C = \frac{I_{max} - I_p}{I_p}$$

wherein C is the concentration of the analyte; I_{max} is the intensity of the SERS signal measured at the peak point of the

structural vibration band; and I_p is the intensity of the SERS signal measured at the pedestal area of the structural vibration band.

4. The method according to claim 1 wherein the registration of the SERS spectrum is conducted at a scanning frequency modulation with a modulation period of $T_M << T_{ed}$ and a modulation amplitude of $\Delta\nu < \Delta$, wherein Δ is the average width of lines of the measured SERS spectrum, and the signature of the analyte is the first derivative of the SERS spectrum.

5. The method according to claim 1 wherein registration of the SERS spectrum is conducted by optical correlation spectroscopy, and the signature of the analyte is the correlation score of the emission analyzed with the hardware transmission function of a receiver imitating a reference SERS signature of the analyte or with a model digital image of a references SERS spectrum of the analyte.

6. The method according to claim 1 wherein an interference polarizing filter is used to identify the analyte, wherein the transmission spectrum of the interference polarizing filter has been correlated with the distribution of intensity of at least one characteristic band of the SERS spectrum of the analyte.